

Claims

1. A surface-treated plastic slide for immobilizing thereto proteins, peptides or small molecules, comprising a plastic slide and a coating as a spacer on the plastic slide.
2. The surface-treated plastic slide as claimed in claim 1, wherein the plastic slide is formed of a material, which is a polycarbonate, or a homopolymer or copolymer that is made of one or more monomers selected from the group consisting of ethylene, haloethylene, propylene, halopropylene, acrylate, methacrylate, butadiene, acrylonitrile, norbornene and styrene.
3. The surface-treated plastic slide as claimed in claim 1, wherein the plastic slide is formed of a polymer of styrene.
4. The surface-treated plastic slide as claimed in claim 1, wherein the plastic slide has at least one cavity chamber.
5. The surface-treated plastic slide as claimed in claim 4, wherein the depth of the cavity chambers may be the same or different, and ranges from less than 0.03 mm to 0.5 mm.
6. The surface-treated plastic slide as claimed in claim 1, wherein the raw plastic slide is pretreated with a polyfunctional aldehyde followed by soaking in a solution of NH<sub>2</sub> group(s)-providing precursor before coating the plastic slide.
7. The surface-treated plastic slide as claimed in claim 6, wherein the polyfunctional aldehyde is glutaldehyde.
8. The surface-treated plastic slide as claimed in claim 1, wherein the NH<sub>2</sub> group(s)-providing precursor is NH<sub>4</sub>OH.
9. The surface-treated plastic slide as claimed in claim 1, wherein the coating is formed of polyfunctional molecules.

10. The surface-treated plastic slide as claimed in claim 9, wherein the polyfunctional molecule is a polyfunctional epoxide containing at least one epoxy group at each of its ends.

11. The surface-treated plastic slide as claimed in claim 10, wherein the epoxy group(s) at one end of the polyfunctional epoxide react with the amino group(s) on the surface of the pretreated plastic slide.

12. The surface-treated plastic slide as claimed in claim 10, wherein the epoxy group(s) at the other end of the polyfunctional epoxide react with the free hydroxyl, sulfhydryl or amino groups of the proteins, peptides or small molecules.

13. The surface-treated plastic slide as claimed in claim 10, wherein the polyfunctional epoxide contains a long chemical chain of 6 to 24 carbon atoms.

14. The surface-treated plastic slide as claimed in claim 1, wherein the proteins, peptides or small molecules are homogeneous or heterogeneous.

15. A surface-treated polystyrene slide for immobilizing thereto oligonucleotides or polynucleotides, comprising a polystyrene slide and a coating as a spacer on the plastic slide.

16. The surface-treated polystyrene slide as claimed in claim 15, wherein the coating is formed by applying a reagent comprising a  $\text{NH}_4^+$  group-free buffer containing positive charges-providing polymers under an alkaline condition.

17. The surface-treated polystyrene slide as claimed in claim 16, wherein the positive charges-providing polymer is polylysine.

18. The surface-treated polystyrene slide as claimed in claim 16, wherein the  $\text{NH}_4^+$  group-free buffer is selected from the group consisting of a carbonate, phosphate and citrate buffer.

19. The surface-treated polystyrene slide as claimed in claim 16, wherein the alkaline condition is in the range of pH 9 to 11.

20. The surface-treated polystyrene slide as claimed in claim 15, wherein the polystyrene slide has at least one cavity chamber.

21. The surface-treated polystyrene slide as claimed in claim 20, wherein the depth of the cavity chambers may be the same or different, and ranges from less than 0.03 mm to 0.5 mm.

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